

WHAT IS CLAIMED IS:

1. A compound of the formula



in which

A is an unsubstituted or mono- to tetrasubstituted, aromatic or non-aromatic, monocyclic or bicyclic heterocyclic radical, where one to two of the substituents of A can be selected from the group consisting of halo-C<sub>1</sub>-C<sub>3</sub>alkyl, cyclopropyl, halocyclopropyl, C<sub>2</sub>-C<sub>3</sub>alkenyl, C<sub>2</sub>-C<sub>3</sub>alkynyl, halo-C<sub>2</sub>-C<sub>3</sub>alkenyl, halo-C<sub>2</sub>-C<sub>3</sub>alkynyl, halo-C<sub>1</sub>-C<sub>3</sub>alkoxy, C<sub>1</sub>-C<sub>3</sub>alkylthio, halo-C<sub>1</sub>-C<sub>3</sub>alkylthio, allyloxy, propargyloxy, allylthio, propargylthio, haloallyloxy, haloallylthio, cyano and nitro, and one to four of the substituents of A can be selected from the group consisting of C<sub>1</sub>-C<sub>3</sub>alkyl, C<sub>1</sub>-C<sub>3</sub>alkoxy and halogen;

R is hydrogen, C<sub>1</sub>-C<sub>6</sub>alkyl, phenyl-C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl or C<sub>2</sub>-C<sub>6</sub>alkynyl; and

X is N-NO<sub>2</sub> or N-CN,

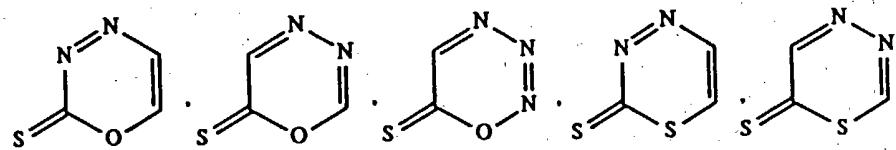
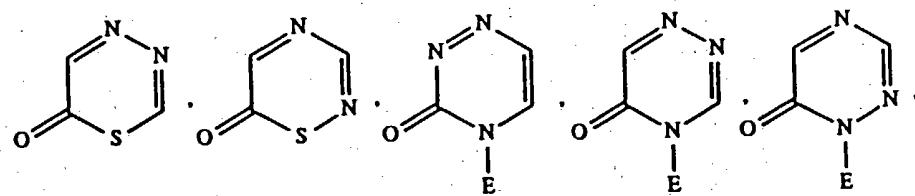
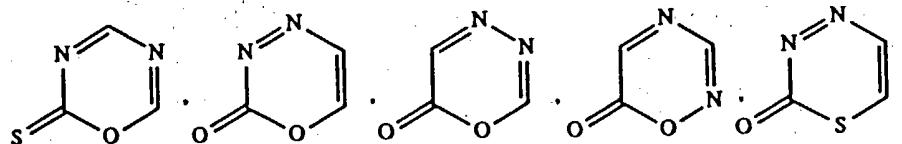
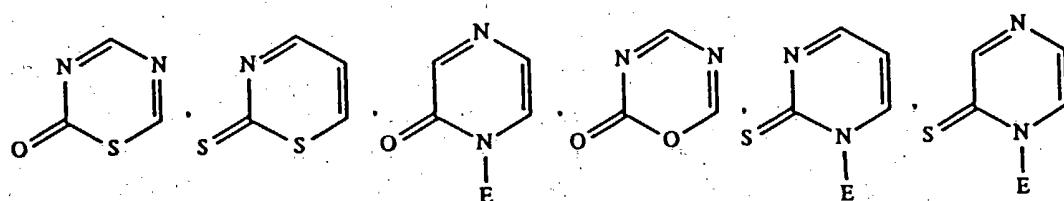
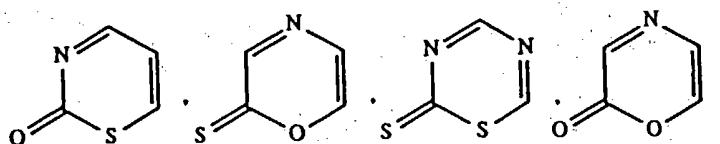
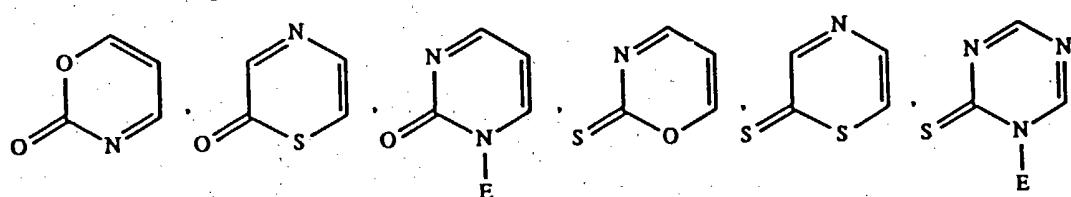
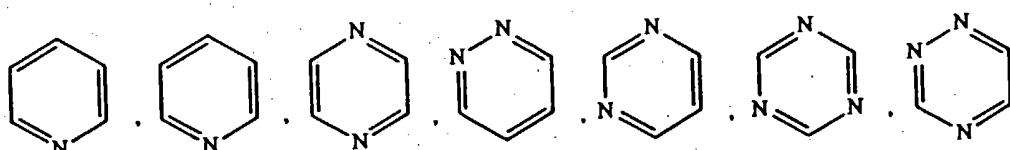
or, if appropriate, a tautomer thereof, in each case in free form or in salt form.

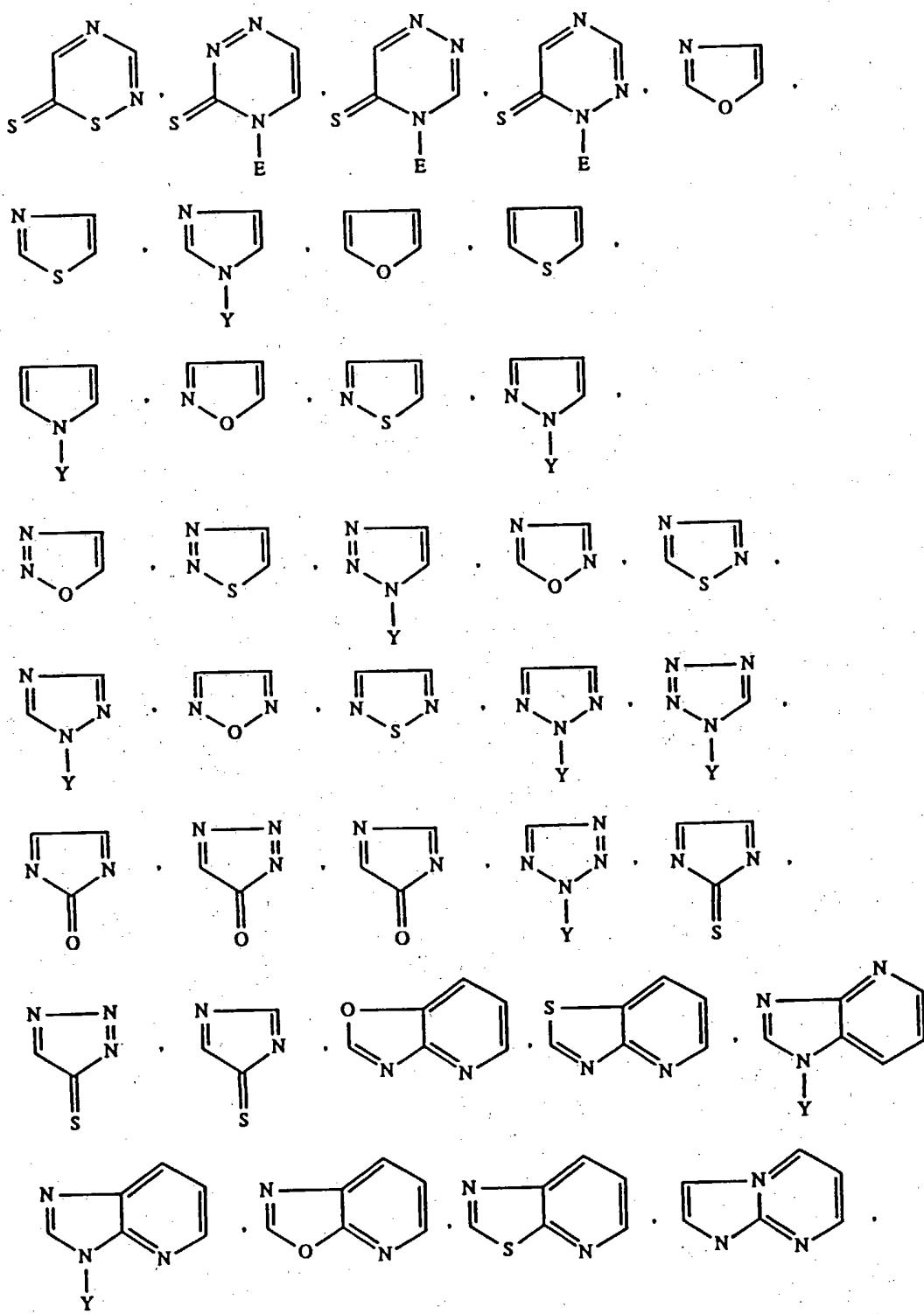
2. A compound according to claim 1 of the formula I, in which the basic ring structure of A is a ring having 5 or 6 ring members to which a further ring having 5 or 6 ring members can be fused, or, if appropriate, a tautomer thereof.

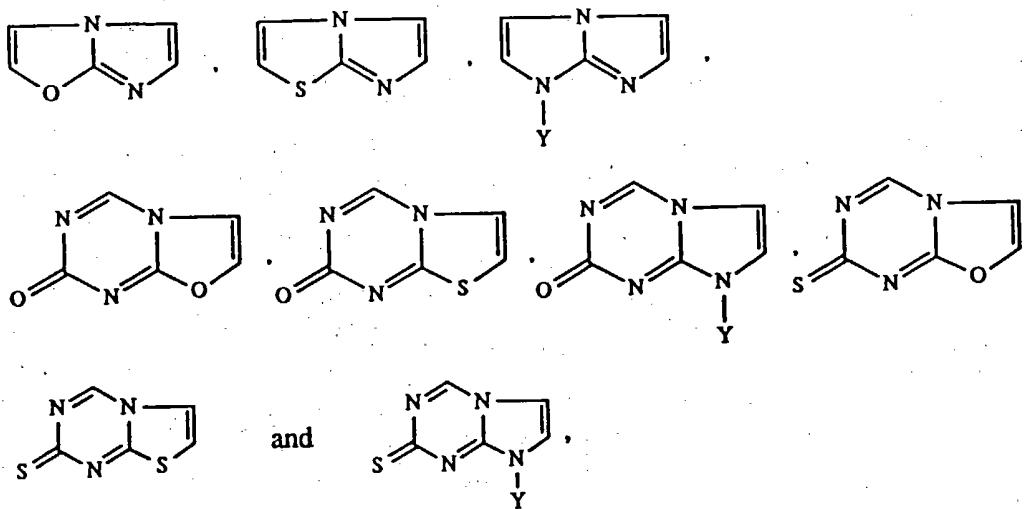
3. A compound according to claim 1 of the formula I, in which the basic ring structure of A is unsaturated, or, if appropriate, a tautomer thereof.

4. A compound as claimed in claim 1 of the formula I, in which the basic ring structure of A has 1 up to and including 4 hetero atoms, or, if appropriate, a tautomer thereof.

5. A compound as claimed in claim 1 of the formula I, in which the basic ring structure of A is selected from the group consisting of the basic ring structures







in which E is in each case C<sub>1</sub>-C<sub>3</sub>alkyl, Y is in each case hydrogen, C<sub>1</sub>-C<sub>3</sub>alkyl or cyclopropyl, and E and Y, respectively, are not regarded as a substituent of A but considered as part of the basic ring structure of A, or, if appropriate, a tautomer thereof.

6. A compound as claimed in claim 5 of the formula I, in which the basic ring structure of A has 1, 2 or 3 hetero atoms selected from the group consisting of oxygen, sulfur and nitrogen, where not more than one of the hetero atoms in the basic ring structure is an oxygen atom and not more than one of the hetero atoms in the basic ring structure is a sulfur atom, or, if appropriate, a tautomer thereof.

7. A compound as claimed in claim 6 of the formula I, in which A is bonded via a C atom of its basic ring structure to the remaining part of the compound I, or, if appropriate, a tautomer thereof.

8. A compound as claimed in claim 7 of the formula I, in which A is unsubstituted or mono- or disubstituted by substituents selected from the group consisting of halogen, C<sub>1</sub>-C<sub>3</sub>alkyl, halo-C<sub>1</sub>-C<sub>3</sub>alkyl, C<sub>1</sub>-C<sub>3</sub>alkoxy and halo-C<sub>1</sub>-C<sub>3</sub>alkoxy, or, if appropriate, a tautomer thereof.

9. A compound as claimed in claim 8 of the formula I, in which the basic ring structure of A is a pyridyl, 1-oxidopyridinio or thiazolyl group, or, if appropriate, a tautomer thereof.

10. A compound as claimed in claim 1 of the formula I, in which R is C<sub>1</sub>-C<sub>6</sub>alkyl, phenyl-C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl or C<sub>3</sub>-C<sub>4</sub>alkynyl, or, if appropriate, a tautomer thereof.

tautomer thereof.

11. A compound as claimed in claim 1 of the formula I, in which X is N-NO<sub>2</sub>, or, if appropriate, a tautomer thereof.

12. A compound as claimed in claim 9 of the formula I, in which A is a pyridyl, 1-oxidopyridinio or thiazolyl group which is bonded via a C atom of its basic ring structure to the remaining part of the compound I and which is unsubstituted or mono- or disubstituted by substituents selected from the group consisting of halogen and C<sub>1</sub>-C<sub>3</sub>alkyl, R is C<sub>1</sub>-C<sub>6</sub>alkyl, phenyl-C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl or C<sub>3</sub>-C<sub>4</sub>alkynyl, and X is N-NO<sub>2</sub> or N-CN, or, if appropriate, a tautomer thereof.

13. A compound as claimed in claim 12 of the formula I, in which A is a 2-chloropyrid-5-yl, 2-methylpyrid-5-yl, 1-oxido-3-pyridinio, 2-chloro-1-oxido-5-pyridinio, 2,3-dichloro-1-oxido-5-pyridinio or 2-chlorothiazol-5-yl group, R is C<sub>1</sub>-C<sub>4</sub>alkyl and X is N-NO<sub>2</sub>.

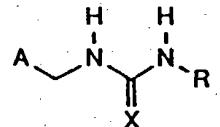
14. A compound as claimed in claim 13 of the formula I, in which A is a 2-chlorothiazol-5-yl or 2-chloropyrid-5-yl group, R is C<sub>1</sub>-C<sub>4</sub>alkyl and X is N-NO<sub>2</sub>.

15. A compound as claimed in claim 13 of the formula I, selected from the group consisting of the compounds

- (a) 5-(2-chloropyrid-5-ylmethyl)-3-methyl-4-nitroiminoperhydro-1,3,5-oxadiazine,
- (b) 5-(2-chlorothiazol-5-ylmethyl)-3-methyl-4-nitroiminoperhydro-1,3,5-oxadiazine,
- (c) 3-methyl-4-nitroimino-5-(1-oxido-3-pyridiniomethyl)perhydro-1,3,5-oxadiazine,
- (d) 5-(2-chloro-1-oxido-5-pyridiniomethyl)-3-methyl-4-nitroiminoperhydro-1,3,5-oxadiazine and
- (e) 3-methyl-5-(2-methylpyrid-5-ylmethyl)-4-nitroiminoperhydro-1,3,5-oxadiazine.

16. A process for the preparation of a compound as claimed in claim 1 of the formula I or, if appropriate, a tautomer thereof, in each case in free form or in salt form, which comprises

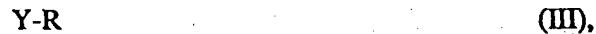
a) reacting a compound of the formula



(II),

in which A, R and X are as defined in formula I, or a tautomer and/or salt thereof, with formaldehyde or paraformaldehyde, preferably in the presence of a base or furthermore in the presence of an acid catalyst, or

b) to prepare a compound of the formula I in which R is other than hydrogen, or, if appropriate, a tautomer and/or salt thereof, reacting, preferably in the presence of a base, a compound of the formula I in which R is hydrogen and which can be obtained, for example, according to variant a) or c), or a tautomer and/or salt thereof, with a compound of the formula



in which R is as defined in formula I with the exception of hydrogen and Y is a leaving group, or

c) reacting, preferably in the presence of a base, a compound of the formula



in which R and X are as defined in formula I, or a tautomer and/or salt thereof, with a compound of the formula



in which A is as defined in formula I and Y is a leaving group, or, if appropriate, with a tautomer and/or salt thereof,

and/or, if desired, converting a compound of the formula I or tautomer thereof, in each case in free form or in salt form, which can be obtained according to the process or by a different method, into a different compound of the formula I or a tautomer thereof, separating an isomer mixture which can be obtained according to the process, isolating the desired isomer, and/or converting a free compound of the formula I or a tautomer thereof, which can be obtained according to the process or by a different method, into a salt, or converting a salt of a compound of the formula I or of a tautomer thereof, which can be obtained according to the process or by a different method, into the free compound of the formula I or into a tautomer thereof, or into a different salt.

17. A pesticidal composition which comprises, together with at least one auxiliary, as active ingredient a pesticidally effective amount of at least one compound as claimed in claim 1 of the formula I or, if appropriate, a tautomer thereof, in each case in free form or

in agrochemically utilisable salt form.

18. A composition as claimed in claim 17 for controlling insects.

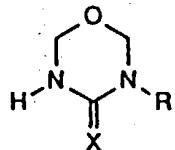
19. A method of controlling pests which comprises applying a composition as claimed in claim 17 to the pests or to their environment.

20. A method as claimed in claim 19 for controlling insects.

21. A method as claimed in claim 19 for the protection of plant propagation material, which comprises treating the propagation material or the locus where the propagation material is planted.

22. Plant propagation material treated by the method described in claim 21.

23. A compound of the formula



(IV),

in which R and X are as defined for formula I in claim 1, or a tautomer thereof, in each case in free form or in salt form.

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